significant, progressive decline in the blue crab landings in the Pamlico River since 1984 (Table 1).

While the blue crab landings have declined in the Pamlico River since 1984, they have fluctuated in Pamlico Sound and have returned to the 1984 level. This suggests that conditions affecting blue crab survival have deteriorated in the Pamlico River since 1984. (This is assuming that no recruitment occurs between sites, which at present is uncertain). It is interesting to note that the recent major finfish epidemics have also occurred primarily in the Pamlico River, not Pamlico Sound (J. Hawkins, personal communication).

Shell disease of blue crabs fits a pattern which is similar to the dermatological syndromes which have been diagnosed in many finfish species of the A/P Estuary. The similarities are:

1) It is an infectious disease which is associated with a number of different pathogens which can cause a similar clinical syndrome.

2) The pathogens associated with the lesions are endemic to estuarine waters and thus are considered to be opportunistic agents.

3) A syndrome of similar appearance has been described in a number of other crustaceans, again suggesting the opportunistic nature of the pathogens involved.

4) The disease is typically associated with stressful environmental conditions.

While a number of infectious agents have been isolated from shell disease lesions, the underlying cause of the disease has been a mystery. It is generally felt that some form of damage to the surface of the carapace (i.e., the epicuticle) is needed for development of the disease. This is believed to allow the colonization of chitinoclastic bacteria which can feed on the deeper layers of the shell. However, this hypothesis does not explain several aspects of the pathogenesis of this disease:

First, most crabs do not develop severe shell disease from simply the minor mechanical cuticular damage associated with normal daily activity; second, the bacteria associated with shell disease are common and ubiquitous (Johnson 1983, Kaneko and Colwell 1975), making the apparent risk of infection very high; third, shell disease is difficult to reproduce experimentally.

Bacteria isolated from shell disease lesions often have lipase or chitinase enzymes (Cipriani et al 1980, Malloy 1978). Lipolytic bacteria have been suggested as the cause of initial damage to the lipid-rich epicuticle, subsequently exposing the